Highfield J&I SCHOOL

ARITHMETIC/MENTAL MATHS PROGRESSION DOCUMENT

EYFS: Arithmetic/Mental Maths/Warm-Up Progression		
Term 1	**Term 2**	**Term 3 – Building in reasoning practice**
Recite numbers up to 5	Count forwards to 10	Count forwards and backwards to 10
Touch count a group of items, saying one number for each item	Count 10 objects from a larger group/	Count beyond 20 verbally
Begin to recognise numerals of 0 – 10	Order the numerals 0 – 10	Match the quantity to the numeral to 10
Subitise one, two and three objects	Subitise four and five objects	Subitise numbers to 10 E.g. 6 raisins on a plate as 3 and
Show fingers up to 5	Add one to numbers to 10	Add and subtract one from/to numbers to 10
Recall number bonds to 5	Show fingers up to 5	Recall number bonds to 10
Name common 2D shapes (circle, triangle and square)	Name simple 2D shapes (circle, triangle, square, rectangle and diamond)	Describe shapes E.g. “A heart-shaped leaf”
Explain the position of an object with multiple choice answers provided E.g. Where is the bag? Under the table or on the desk?	Explain the position of an object E.g. Where is the bag?	Locate an item by following positional directions
Predict what comes next in a simple pattern	Spot the error in a repeating pattern	Spot odd/even patterns in the environment and identify the pattern rule

Year 1: Arithmetic/Mental Maths/Warm-Up Progression		
Term 1	**Term 2**	**Term 3**
Read and write numbers 1-5 in numerals and words.	Read and write numbers 1-15 in numerals and words.	Read and write numbers 1-20 in numerals and words.
Count in 1s + 2s. (Forwards and backwards.)	Count in 1s, 2s + 5s. (Forwards and backwards.) from any number	Count in 1s, 2s, 5s, 10s (Forwards and backwards.) from any number
Numbers one more and one less up to 20.	Numbers one more and one less up to 50.	Numbers one more and one less up to 100. Given a number, identify one more and one less
Use knowledge of number bonds to 10, to represent and use number bonds to 20	Using number bonds to 20, devise related subtraction facts to 20	Missing number, number bond problems E.g. 20 = ? + 14
Add one-digit and two-digit numbers to 20, including zero	Subtract one-digit and two-digit numbers to 20, including zero	Missing number problems such as 7 = ? – 9.
Odd and even numbers up to 10.	Odd and even numbers up to 20.	Odd and even numbers up to 50.
Doubles of all numbers to 10.	Know halves of all numbers up to 10.	Doubles of all numbers to 10 and corresponding halves.
Begin to know ten times table. (By rote)	Begin to know ten times table. (Quick recall)	Secure knowledge of ten times table. (Inc 12 x 10)
Find a half of an object, shape or quantity.	Find a quarter of an object, shape or quantity.	Find a halves and quarters of objects, shapes and quantities
Recognise and know the value of different denominations of coins	Recognise and know the value of different denominations of notes	Recognise and know the value of different denominations of coins and notes

Year 2: Arithmetic/Mental Maths/Warm-Up Progression		
Term 1	**Term 2**	**Term 3**
Count in steps of 2, 5 and 10 from 0, forwards	Count in steps of 3 from 0, forwards Count in steps of 2, 5 and 10 from 0, backwards	Count in steps of 2, 3, 5 and 10 from 0, forwards and backwards
Count in 10's from any number up to 100	Count in 10's from any number up to 500	Count in tens from any number up to 500 forwards and backwards
Recognise place value of each digit in a two-digit number		
Read and write numbers to 50 in numerals and words. (EOY 1 expectation to 20)	Read and write numbers to 75 in numerals and words.	Read and write numbers to 100 in numerals and words
Recall addition facts for all numbers up to 20	Recall subtraction facts for all numbers up to 20	Recall addition and subtraction facts for all numbers up to 20
Use my knowledge of numbers bonds to 10, to represent and show addition facts to 100 – involving multiples of 10 E.g. 40 + 60 = 100	Use my knowledge of numbers bonds to 10, to represent and show subtraction facts to 100 – involving multiples of 10 E.g. 100 – 30 = 70	Find the missing multiple of 10 to complete addition and subtraction calculations to 100. E.g 100 = 20 + ? 100 - ? = 70
Use my knowledge of number bonds to add any two-digit and single digit number to total to a multiple of 10. E.g. 52 + 8 = 60	Use my knowledge of number bonds to subtract any single digit number from a multiple of 10. E.g. 70 – 3 = 67	Solve missing number problems involving addition and subtraction of a single digit number from or total to a multiple of 10. E.g. 70 - ____ = 67 52 + ____ = 60
Double and half numbers to 20	Double multiples of 5 and 10 to 100	Add near doubles e.g. 39 + 40 =
Half multiples of 10 to 100 (when the tens digit is even) E.g. 20, 40, 60, 80	Half any multiple of 10 to 100	Find half of even numbers to 100
Odd and even numbers from 50 – 100	Odd and even numbers to 100	Odd and even numbers to 100 and explain how you know that they are odd or even
Recall multiplication and division facts for the 2 and 5 times table (This must be up to x12)	Recall multiplication and division facts for the 2, 5 and 10 times table (This must be up to x12)	Recall multiplication and division facts for the 2, 5, 10 and begin to know 3 times table and division facts. (This must be up to x12)
Find the total number of objects when they are organised into groups of 2 and 5.	Find the total number of objects when they are organised into groups of 2, 5 and 10.	Find total number of objects when they are organised into groups of 2, 3, 5 or 10.

Year 3: Arithmetic/Mental Maths/Warm-Up Progression		
Term 1	**Term 2**	**Term 3**
Count in multiples of 50 and 100 from 0.	Count in multiples of 4 and 8 from 0.	Count in multiples of 4, 8, 50 and 100 from 0.
Recall and use multiplication facts for the 3, 4 and 8 multiplication tables up to x12	Recall and use division facts for the 3, 4 and 8 multiplication tables up to x12	Recall and use multiplication and division facts for 3, 4 and 8 multiplication tables up to x12
Recognise place value of each digit in a three-digit number		
Read and write numbers up to 1000 in numerals	Read and write numbers up to 1000 in words	Read and write numbers up to 1000 in numerals and words.
Find 10 more or less than a given number to 1000	Find 100 more of less than a given number to 1000	Find 10 or 100 more or less than a given number up to 1000.
Mentally add a three-digit number and ones, tens and hundreds	Mentally subtract ones, tens and hundreds from a three-digit number	Mentally add and subtract ones, tens and hundreds from/to a three-digit number
Add amounts of money using £ and p	Subtract amounts of money using £ and p	Add and subtract amounts of money to give change, using both £ and p in practical contexts
Add multiples of 10 to 1000. E.g. 80 + 30 =	Subtract multiples of 10 to 1000. E.g. 120= 90 =	Sums and differences of multiples of 10 e.g. 80 + 30 = 120 – 90 = To subtract multiples of 10.
Add pairs of two-digit numbers that total 100 E.g. 32 + ___ = 100	Add multiples of 100 that total 1000 E.g. 300 + 700 = 1000	Add near doubles E.g. 18 + 16 = or 60 + 70 =
Double multiples of 10 up to 200 E.g. 90 + 90 =	Halve multiples of 10 up to 200	Double and halve multiples of 10 up to 200
Double multiples of 5 up to 50	Double multiples of 5 up to 100	Doubles multiples of 5 up to 200
Multiply any one digit number by 10 or 100 E.g. 7 x 100 =	Multiply any two digit number by 10 E.g. 46 x 10 =	Multiply one digit number or two-digit number by 10 or 100 e.g. 7 x 100 = 46 x 10 =
To use multiplication and division facts e.g. 3 x 2 = 6, 6 ÷ 3 = 2 and 2 = 6 ÷ 3 to derive related facts e.g. 30 x 2 = 60, 60 ÷ 3 = 20 and 20 = 60 ÷ 3		
Identify the remainder when dividing by 2	Identify the remainder when dividing by 5	Identify the remainder when dividing by 2, 5 or 10
Count up and down in tenths	Divide one digit numbers or quantities by 10	Find tenths of numbers/quantities
Add fractions with the same denominator	Subtract fractions with the same denominator	Add and subtract fractions with the same denominator and compare/order fractions with the same denominators

Year 4: Arithmetic/Mental Maths/Warm-Up Progression		
Term 1	**Term 2**	**Term 3**
Read Roman Numerals to 20	Read Roman Numerals to 50	Read Roman Numerals to 100
Count in multiples of 10, 25 and 1000	Count in multiples of 6, 7, 9, 10, 25 and 1000	Identify the missing multiple in a sequence
Recall multiplication facts for the 2, 5 and 10 times tables and related division facts	Recall multiplication facts for the 2, 5, 10, 3, 4 and 8 times tables and related division facts	Identify the missing number in a multiplication or division calculation, using the inverse.
Recognise the place value of each digit in a four-digit number		
Find 1000 more than a given number	Find 1000 less than a given number	Find 1000 more or less than a given number
Add and subtract multiples of 10, 100 and 1000 up to 5,000	Add and subtract multiples of 10, 100 and 1000 up to 10,000	What must be added to any three-digit number to make the next multiple of 100? 521 + ___ = 600.
Add or subtract three- digit multiples of 10 e.g. 120 – 40 140 + 160 =	Add or subtract a near multiple of 10 e.g. 56 + 39 = 65 – 41	Add or subtract any pair of two-digit numbers including crossing the tens and 100, boundary e.g. 47 + 58
Count backwards through zero to include negative numbers	Count forwards through zero to include negative numbers	Count forwards and backwards through zero to include negative numbers
Double numbers up to 50	Double numbers up to 100	Double numbers up to 100 and their corresponding halves
Recall factors of 2, 5 and 10	Recall factors of 3, 4 and 8	Recall factors and factor pairs of numbers up to 12
Multiply and divide a one-digit number by 10 and 100	Multiply and divide a two-digit number by 10 and 100	Multiply and divide a one-digit or two-digit number by 10 and 100
Identify the remainder when dividing by 5	Identify the remainder when dividing by 3	Identify the remainder when dividing by 5 and 3
Multiply a multiple of 10 by a one-digit number	Multiply numbers to 20 by a one-digit number E.g. 17 x 3 = so… (10 x 3) + (7 x 3) =	Use the distributive law to derive facts, for example, 30 x 7 + 9 x 7= 39 x 7.
Identify fraction and decimal equivalents of one half, one quarter and three quarters	Identify fraction and decimal equivalents of tenths and hundredths	Identify pairs of fractions that make one whole/one
Use multiplication facts to derive related facts, involving two-digit numbers E.g. 3 x 2 = 6 so 30 x 2 = 60	Use multiplication facts to derive related facts, involving three-digit numbers E.g. 3 x 2 = 6 so 300 x 2 = 600	Use multiplication and division facts to derive related facts, involving two and three-digit numbers

Year 5: Arithmetic/Mental Maths/Warm-Up Progression		
Term 1	**Term 2**	**Term 3**
Count forwards or backwards in steps of powers of 10 for any given number up to 250,000.	Count forwards or backwards in steps of powers of 10 for any given number up to 500,000.	Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000.
Count forwards with positive and negative whole numbers, including through 0.	Count backwards with positive and negative whole numbers, including through 0.	Apply counting forwards and backwards with positive and negative whole numbers to finding simple temperature difference.
Add and subtract a pair of three digit multiples of 10. E.g. 2300 + 560 =	Add and Subtract a pair of three digit and four-digit multiples of 10. E.g. 4300 + 260 =	Use inverse to find missing number pairs of multiples (application)
Add and subtract a near multiple of 10 or 100 to any three digit numbers e.g. 1235 + 198 =	Add and Subtract a near multiple of 10 or 100 from any three or four digit numbers e.g. 4235 - 398 =	Subtract a four digit number just less than a multiple of 1000 from a four digit number just more than a multiple of 1000 eg 5001 – 1997.
Know what must be added to a 4-digit number (tens and one) to make the next multiple of 1000, e.g. 4056 + ___ = 5000.	Know what must be added to any 4-digit number to make the next multiple of 1000, e.g. 4156 + ___ = 5000.	Decimal bonds – Know what must be added to a decimal number (tenths) to make the next whole number eg 4.1 + ? = 5.
Find the difference between near multiples of 100 e.g. 609 – 543	Find the difference between near multiples of 1000 e.g. 6070 – 4087 =	Mentally add and subtract with increasingly large numbers e.g. 12 462 – 2300 = 10 162
Identify multiples up to 12 x 12	Identify multiples and factors up to 12 x 12	Identify common multiples - 2/5, ¾ and identify common factors of 2 numbers.
Recall prime numbers up to 50.	Know whether a number up to 100 is a prime number.	Reasoning application involving prime number.
Recall square numbers up to 12 x 12	Recall cubed numbers up to 12 x 12 x 12.	BIDMAS with cubed and squared numbers
Multiply and divide 4 and 5 digit whole numbers by 10, 100,1000	Multiply and divide decimals with 3dp by 10/100.	Multiply and divide decimals with 3dp by 10/100/1000
Multiply pairs of multiples of 10 e.g. 50 x 40 =	Multiply pairs of multiples of 10/100/100 e.g. 5000 x 400 =	Missing number problems with different multiples.
Divide a three digit multiple of 10 by a single digit number e.g. 800 divided by 4, 270 divided by 3 =	Divide a four digit multiple of 10 by a single digit number e.g. 2800 divided by 4, 4270 divided by 3 =	Use known facts to divide decimals eg 0.3 x 7, 2.4 divided by 3.
Doubles of decimals e.g double 4.6	Halves of decimals e.g. half of 5.6	Doubles and halves of decimals – larger number e.g. half of 32.6
Find the remainder after dividing a two digit number by a single digit number (4,8) – within 12 x 12	Find the remainder after dividing a two digit number by a single digit number (6,7,9) - within 12 x 12	Find the remainder after dividing a two digit number by a two digit number (10,11,12) - within 12 x 12
To count up and down in a given fraction (up to fifths)	To count up and down in a given fraction (up to tenths)	To count up and down in a given fraction, including mixed numbers.
Add and subtract tenths to/from any decimal number – up to 1 dec place eg 0.1 + 0.5 = 0.6, 25.3 - 0.1 = 25.2.	Add or subtract any pair of decimal fractions with units and tenths or each with tenths and hundredths eg 5.7 + 2.5 and 0.63-0.48.	Use inverse to check/solve missing number problems (decimals-units and tenths and hundredths) ? – 7.26 = 0.74. 7.26 + 0.74 = 8.
Find fractions of two digit numbers – 2/3 of 15.	Find fractions of whole numbers (multiples of 10) – 2/3 of 150.	Find fractions of whole numbers (multiples of 10,100, 1000) – 2/6 of 1800.
Find 10% of small whole numbers or quantities.	Find 50% and 10% of small whole numbers or quantities.	Find 50%, 25% or 10% of small whole numbers or quantities.

Year 6: Arithmetic/Mental Maths/Warm-Up Progression		
Term 1	**Term 2**	**Term 3 – Building in reasoning practice and consolidation of all taught mental skills.**
Decimal bonds – hundredths. 7.26 + ? = 8. 0.26 + ? = 1	Decimal bonds – thousandths. 2.261 + ? = 3. 0.263 + ? = 1	Complete all year 6 mental calculation skills with increasing speed and accuracy. Missing number calculations. Continue to focus on performing mental calculations with mixed operations. Mentally add and subtract with increasingly large numbers. NRICH application mental maths - https://nrich.maths.org/6046 - Thousands and Millions https://nrich.maths.org/846 - Prime Magic https://nrich.maths.org/15107 - Mathdokus
Add and subtract pairs of decimals with units, tenths and hundredths– up to 2 dp. 0.5 + 3.35	Add and Subtract pairs of decimals with units, tenths, hundredths and thousandths– up to 3 dp. 6.15 – 0.04.	
Add and subtract a decimal with units and tenths that is nearly a whole number – 4.3 + 2.9	Use inverse to check to solve all missing number calculations eg ? – 7.26 = 0.74, 3.65 + ? = 2.36	
To add/subtract negative and whole numbers.	To use inverse to solve missing negative number calculations.	
Add and subtract the nearest multiple of 10,100 or 1000 and adjust eg 8897 + 2002.	Add and Subtract the nearest multiple of 10,100 or 1000 and adjust up to 5 digits eg 5607 - 1998.	
Mentally add and subtract with increasingly large numbers.	Perform mental calculations with mixed operations.	
Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.	Use inverse to check/solve missing number calculations including multiplication/division of numbers by 10/100/1000 eg ? x 100 = 0.23	
Divide a four digit multiple of 10 by a multiple of 10 e.g. 2800 divided by 40, 4270 divided by 30 =	Divide up to 5 digit multiple of 10 by any multiple of 10 e.g. 28000 divided by 400, 4200 divided by 300 =	
Identify multiples (Above 12 x)	Use a range of tables and diagrams to sort/identify multiples.	
Identify common multiples (up to 12 x)	Identify common multiples (above 12 x)	
Identify common factors (all tables)	Use a range of tables and diagrams to sort/identify factors.	
Identify all prime numbers.	Use a range of tables and diagrams to sort/identify prime numbers.	
Find squares of multiples of 10 up to 100.	Find squares of multiples of 10 up to 1000.	
Multiply and divide a two digit number by a single digit e.g. 34 x 6;	Multiply and divide up to a three digit number by a two digit number. E.g 244 divided by 12	
Continue to use known facts to multiply decimals eg 0.3 x 70 and 0.9 x 600.	Continue to use known facts to multiply and divide decimals eg 2.4 divided by 0.3 and 3.6 divided by 0.6.	
Multiply simple pairs of proper fractions.	Multiply pairs of proper fractions, writing the answer in its simplest form.	
Divide simple pairs of proper fractions, writing the answer in its simplest form	Divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6	
Find any multiple of 10% of a whole number – 70% of 200, 50% of 610, 20% of 220.	Find any multiple of 10% of a quantity – 70% of £20, 50% of 5kg, 20% of 2 metres.	